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PTO/SB/21 (08-00)

Approved for use through 10/31/2002. OMB 0651-0031
Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

TRANSMITTAL FORM (to be used for all correspondence after initial filing)		Application No.	09/148,392
		Filing Date	September 4, 1998
		First Named Inventor	Franklin M. Baez
		Group Art Unit	2123
		Examiner Name	W. Thomson
Total Number of Pages in This Submission	24	Attorney Docket Number	42390P5512

RECEIVED

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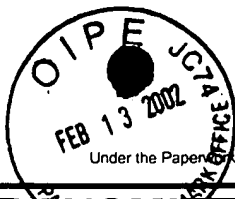
Technology Center 2100

ENCLOSURES (check all that apply)		
<input checked="" type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment / Response <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Response to Missing Parts/Incomplete Application <input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Assignment Papers (for an Application) <input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s)	<input type="checkbox"/> After Allowance Communication to Group <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to Group (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input checked="" type="checkbox"/> Other Enclosure(s) (please identify below): <div style="border: 1px solid black; padding: 5px; margin-top: 5px;">1. Request for Withdrawal of Abandonment, 2. Copy of postcard, Amendment and Response to Office Action mailed</div>
Remarks		

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT	
Firm or Individual name	Thinh V. Nguyen, Reg. No. 42,034 BRAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP
Signature	
Date	January 29, 2002

CERTIFICATE OF MAILING/TRANSMISSION			
I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class mail with sufficient postage in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231 on:			
January 29, 2002			
Typed or printed name	Barbara Hayashi		
Signature		Date	January 29, 2002

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FEE TRANSMITTAL for FY 2002

Patent fees are subject to annual revision.

☐ Applicant claims small entity status. See 37 CFR 1.27.

TOTAL AMOUNT OF PAYMENT (\$)

Complete if Known

Application Number 09/148,392
Filing Date September 4, 1998
First Named Inventor Franklin M. Baez
Examiner Name W. Thomson
Group/Art Unit 2123
Attorney Docket No. 42390P5512

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METHOD OF PAYMENT (check one)

☐ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None
☐ Deposit Account

Deposit Account Number 02-2666
Deposit Account Name Blakely, Sokoloff, Taylor & Zafman LLP

The Commissioner is authorized to: (check all that apply)

☐ Charge fee(s) indicated below ☒ Credit any overpayments
☐ Charge any additional fee(s) during the pendency of the application
☐ Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account

FEE CALCULATION

1. BASIC FILING FEE

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
101	740	201	370	Utility filing fee	
106	330	206	165	Design filing fee	
107	510	207	255	Plant filing fee	
108	740	208	370	Reissue filing fee	
114	160	214	80	Provisional filing fee	
SUBTOTAL (1)					(\$)

2. EXTRA CLAIM FEES

Total Claims 28
Independent Claims 4
Multiple Dependent
Extra Claims Fee from below Fee Paid

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
103	18	203	9	Claims in excess of 20	
102	84	202	42	Independent claims in excess of 3	
104	280	204	140	Multiple Dependent claim, if not paid	
109	84	209	42	**Reissue independent claims over original patent	
110	18	210	9	**Reissue claims in excess of 20 and over original patent	
SUBTOTAL (2)					(\$)

**or number previously paid, if greater. For Reissues, see below

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
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127	50	227	25	Surcharge - late provisional filing fee or cover sheet.	
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147	2,520	147	2,520	For filing a request for ex parte reexamination	
112	920 *	112	920 *	Requesting publication of SIR prior to Examiner action	
113	1,840 *	113	1,840 *	Requesting publication of SIR after Examiner action	
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117	920	217	460	Extension for reply within third month	
118	1,440	218	720	Extension for reply within fourth month	
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140	110	240	55	Petition to revive - unavoidable	
141	1,280	241	640	Petition to revive - unintentional	
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123	50	123	50	Processing fee under 37 CFR 1.17(q)	
126	180	126	180	Submission of Information Disclosure Stmt	
581	40	581	40	Recording each patent assignment per property (times number of properties)	
146	740	246	370	Filing a submission after final rejection (37 CFR § 1.129(a))	
149	740	249	370	For each additional invention to be examined (37 CFR § 1.129(b))	
179	740	279	370	Request for Continued Examination (RCE)	
169	900	169	900	Request for expedited examination of a design application	

Other fee (specify)

* Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (\$)

SUBMITTED BY

Name (Print/Type) Thinh V. Nguyen

Registration No. 42,034
(Attorney/Agent)

Complete (if applicable)

Telephone (714) 557-3800

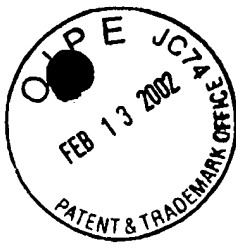
Signature

Date

01/29/02

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Our Docket No.: 042390.P5512

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Franklin M. Baez

Application No.: 09/148,392

Filed: September 4, 1998

For: DESIGN OPTIMIZATION OF
CIRCUITS BY SELECTING DESIGN
POINTS ON PARAMETER
FUNCTIONS TO IMPROVE
OPTIMIZING PARAMETERS OF
CIRCUITS WITHIN DESIGN
CONSTRAINTS

Examiner: William D. Thomson

Art Group: 2123

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FEB 22 2002
Technology Center 2100

REQUEST FOR WITHDRAWAL OF ABANDONMENT

Assistant Commissioner for Patents
Washington, DC 20231

Dear Sir:

In response to the Notice of Abandonment mailed January 14, 2002, Applicant respectfully requests the abandonment be withdrawn for the following reasons:

1. Applicant filed a response to the Office Action dated April 24, 2001, on October 24, 2001, with a three-month extension.
2. The Examiner telephoned the Applicant on November 6, 2001 to advise that he was going to issue a Notice of Abandonment. The Applicant advised the Examiner at that time that a response was filed on October 24, 2001 with a three-month extension. The Examiner replied that he would call the Applicant and request a faxed copy of the response if he did not receive it soon.

Applicant hereby encloses copies of the following:

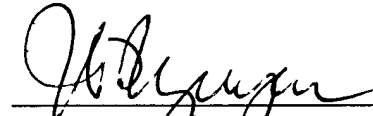
1. A copy of the Amendment and Response to the Office Action showing a Certificate of Mailing executed on October 24, 2001; and
2. A copy of the postcard confirming the Patent and Trademark Office's receipt of the Amendment and Response to the Office Action.

Please proceed with further examination of this application on the basis of the attached copy of the papers originally filed.

Acknowledgement of the active status of this application is respectfully requested.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN

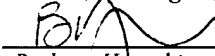

THINH V. NGUYEN
Reg. No. 42,034

Dated: January 29, 2002

12400 Wilshire Boulevard, Seventh Floor
Los Angeles, California 90025
(714) 557-3800

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231 on: January 29, 2002.


Barbara Hayashi



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JAN 18 2002

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN
LOS ANGELES

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JAN 23 2002
BLAKELY SOKOLOFF TAYLOR & ZAFMAN LLP
COSTA MESA

RECEIVED

FEB 22 2002

Technology Center 2100

Application No.: 09/148,392 Filing Date: 09/04/98 BSTZ Docket #: 42390P5512 Atty/Sec: TVN/bh
Date Mailed: 10/24/2001 Docket Due Date(s): 10/24/2001 Client: Intel Corporation
Title Design Optimization of Circuits by Selecting Design Points on Parameter Functions to Improve Optimizing
Parameters of Circuits Within Design Constraints

Inventor(s) Baez

The following has been received in the U.S. Patent & Trademark Office on the date stamped hereon:

- | | |
|--|--|
| <input checked="" type="checkbox"/> Amendment: (<u>13</u> pgs) | <input type="checkbox"/> Information Disclosure Statement & PTO/SB/08 (<u> </u> pgs) |
| <input type="checkbox"/> Appeal Brief & two copies (<u> </u> pgs) | <input type="checkbox"/> Issue Fee Transmittal (original & copy) |
| <input type="checkbox"/> Application: (<u> </u> pages w/ cover & abstract) | <input type="checkbox"/> Notice of Appeal |
| <input type="checkbox"/> Assignment & Cover Sheet (<u> </u> pgs) | <input type="checkbox"/> Petition for: <u> </u> |
| <input checked="" type="checkbox"/> Certificate of Mailing | <input type="checkbox"/> Request for Continued Examination (RCE) |
| <input type="checkbox"/> Continued Prosecution Application (CPA) | <input type="checkbox"/> Reply Brief (<u> </u> pgs) |
| <input type="checkbox"/> Declaration & POA (<u> </u> pgs) | <input type="checkbox"/> Request and Certification Under 35 U.S.C. 122(b)(2)(B)(i) |
| <input type="checkbox"/> Drawings: <u> </u> sheets, <u> </u> figures | <input type="checkbox"/> Request to Rescind Previous Nonpublication Request |
| <input type="checkbox"/> Express Mail No: <u> </u> | <input type="checkbox"/> Response to Notice of Missing Parts & Formalities Letter |
| <input checked="" type="checkbox"/> Extension of Time: <u>three (3) months</u> | <input type="checkbox"/> Terminal Disclaimer |
| <input checked="" type="checkbox"/> Fee Transmittal (original & copy) | <input type="checkbox"/> Transmittal of Formal Drawings |
| <input type="checkbox"/> Other <u> </u> | <input type="checkbox"/> Transmittal Letter |
| | <input checked="" type="checkbox"/> Check No. 12626 in the Amount of <u>\$1,022.00</u> |
| | <input type="checkbox"/> Check No. <u> </u> in the Amount of <u> </u> |

CM

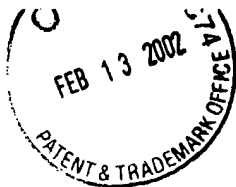
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JAN 18 2002

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JAN 18 2002

STATUS DB-LA



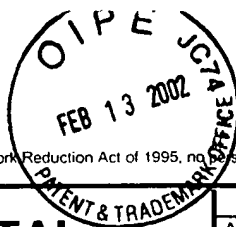
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TRANSMITTAL FORM <i>(to be used for all correspondence after initial filing)</i>		Application No.	09/148,392
		Filing Date	September 4, 1998
		First Named Inventor	Franklin M. Baez
		Group Art Unit	2123
		Examiner Name	W. Thomson
Total Number of Pages in This Submission	17	Attorney Docket Number	42390P5512

ENCLOSURES (check all that apply)		
<input checked="" type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input checked="" type="checkbox"/> Amendment / Response <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input checked="" type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Response to Missing Parts/ Incomplete Application <input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Assignment Papers (for an Application) <input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition Routing Slip (PTO/SB/69) and Accompanying Petition <input type="checkbox"/> To Convert a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Small Entity Statement <input type="checkbox"/> Request for Refund	<input type="checkbox"/> After Allowance Communication to Group <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to Group (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input type="checkbox"/> Additional Enclosure(s) (please identify below): <div style="border: 1px solid black; padding: 5px; text-align: center;">RECEIVED FEB 22 2002 Technology Center 2100</div>
Remarks		

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT	
Firm or Individual name	Thinh V. Nguyen, Reg. No. 42,034 BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP
Signature	
Date	October 24, 2001

CERTIFICATE OF MAILING/TRANSMISSION			
I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class mail with sufficient postage in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231 on: October 24, 2001			
Typed or printed name	Barbara Hayashi		
Signature		Date	October 24, 2001



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PTO/SB/17 (10-01)
Approved for use through 10/31/2002. OMB 0651-0032
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

FEE TRANSMITTAL for FY 2000

Patent fees are subject to annual revision.

TOTAL AMOUNT OF PAYMENT (\$)

1,022.00

Complete if Known

Application Number	09/148,392
Filing Date	September 4, 1998
First Named Inventor	Franklin M. Baez
Examiner Name	W. Thomson
Group/Art Unit	2123
Attorney Docket No.	42390P5512

METHOD OF PAYMENT (check one)

1. ☒ The Commissioner is hereby authorized to charge indicated fees and credit any overpayments to:

Deposit Account Number 02-2666

Deposit Account Name Blakely, Sokoloff, Taylor & Zafman LLP

☒ Charge Any Additional Fee(s) Required
Under 37 CFR §§ 1.16, 1.17, 1.18 and 1.20.

☐ Applicant claims small entity status.
See 37 CFR 1.27.

2. ☒ Payment Enclosed:

☒ Check ☐ Credit card ☐ Money Order ☐ Other

FEE CALCULATION

1. BASIC FILING FEE

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
101	740	201	370	Utility filing fee	
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107	510	207	255	Plant filing fee	
108	740	208	370	Reissue filing fee	
114	160	214	80	Provisional filing fee	

SUBTOTAL (1) (\$)

2. EXTRA CLAIM FEES

Total Claims		Extra Claims		Fee from below	
Independent	Multiple Dependent	Claims			
28	27	1	X	18.00	\$18.00
4	3	1	X	84.00	\$84.00

Large Entity		Small Entity		Fee Description
Fee Code	Fee (\$)	Fee Code	Fee (\$)	
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102	84	202	42	Independent claims in excess of 3
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109	84	209	42	**Reissue independent claims over original patent
110	18	210	9	**Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) (\$)

**or number previously paid, if greater, For Reissues, see below

FEE CALCULATION (continued)

3. ADDITIONAL FEE

Large Entity		Small Entity		Fee Description
Fee Code	Fee (\$)	Fee Code	Fee (\$)	
105	130	205	65	Surcharge - late filing fee or oath
127	50	227	25	Surcharge - late provisional filing fee or cover sheet.
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147	2,520	147	2,520	For filing a request for <i>ex parte</i> reexamination
112	920*	112	920*	Requesting publication of SIR prior to Examiner action
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169	900	169	900	Request for expedited examination of a design application

Other fee (specify)

Other fee (specify)

* Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (\$)

920.00

SUBMITTED BY

Name (Print/Type) Thinh V. Nguyen

Registration No. (Attorney/Agent)

42,034

Telephone (714) 557-3800

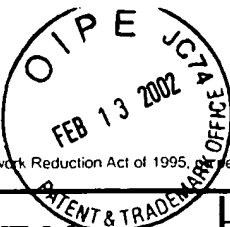
Signature

Date

10/24/01

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METHOD OF PAYMENT (check one)

1. ☒ The Commissioner is hereby authorized to charge indicated fees and credit any overpayments to:

Deposit
Account
Number

02-2666

Deposit
Account
Name

Blakely, Sokoloff, Taylor & Zafman LLP

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Multiple Dependent

Large Entity Small Entity

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SUBTOTAL (2) (\$) 102.00

**or number previously paid, if greater, For Reissues, see below

FEE CALCULATION (continued)

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Large Entity Small Entity

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Other fee (specify)

Other fee (specify)

* Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (\$) 920.00

SUBMITTED BY

Name (Print/Type)

Thinh V. Nguyen

Registration No.
(Attorney/Agent)

42,034

Complete (if applicable)

Telephone

(714) 557-3800

Signature

Thinh V. Nguyen

Date

10/24/01

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Docket No.: 42390P5512

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re the Application of:

FRANKLIN M. BAEZ

Application No.: 09/148,392

Filed: September 4, 1998

For: **Design Optimization of Circuits by Selecting
Design Points on Parameter Functions to Improve
Optimizing Parameters of Circuits Within Design
Constraints**

Art Group: 2123

Examiner: W. Thomson

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Technology Center 2100

PETITION FOR EXTENSION OF TIME PURSUANT TO 37 C.F.R. § 1.136(a)

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

In accordance with 37 C.F. R. § 1.136(a), Applicant for the above-identified application respectfully Petitions the Commissioner for a three (3) months month extension of time, extending the period for response to October 24, 2001, from the Office Action dated April 24, 2001. The petition filing fee of 920 and the Response to Office Action are attached.

If it should be determined that a longer extension of time is required to prevent this application from being abandoned, please charge any additional fees to Deposit Account No. 02-2666. A copy of the Fee Transmittal is enclosed for deposit account charging purposes.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP

Thinh V. Nguyen, Reg. No. 42,034

Date: October 24, 2001

12400 Wilshire Blvd., 7th Floor
Los Angeles, California 90025
Telephone: (714) 557-3800

I hereby certify that this correspondence is being deposited with United States Postal Service as First Class mail with sufficient postage in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231 on: October 24, 2001.

Barbara Hayashi

10-24-01

Date



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Docket No.: 042390.P5512

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Franklin M. Baez

Application No.: 09/148,392

Filed: September 4, 1998

For: DESIGN OPTIMIZATION OF
CIRCUITS BY SELECTING DESIGN
POINTS ON PARAMETER
FUNCTIONS TO IMPROVE
OPTIMIZING PARAMETERS OF
CIRCUITS WITHIN DESIGN
CONSTRAINTS (Amended)

Examiner: William Thomas

Art Group: 2123

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AMENDMENT AND RESPONSE TO THE OFFICE ACTION

BOX NON-FEE AMENDMENT

Assistant Commissioner for Patents
Washington, DC 20231-9998

Sir:

In response to the outstanding Office Action, mailed April 24, 2001, please amend the above-identified Application as follows:

IN THE TITLE

Please delete the Title of the Application and insert the following in lieu thereof:

--DESIGN OPTIMIZATION OF CIRCUITS BY SELECTING DESIGN POINTS ON
PARAMETER FUNCTIONS TO IMPROVE OPTIMIZING PARAMETERS OF CIRCUITS
WITHIN DESIGN CONSTRAINTS--.

IN THE ABSTRACT

Please delete the Abstract and insert the following in lieu thereof:

--One embodiment of the present invention is a method and machine readable medium for determining optimal values of design parameters of a subsystem to meet design constraints. The subsystem includes a number of circuits. A parameter function is created for the corresponding circuits. The parameter function represents a relationship among design parameters of the subsystem. The design parameters include constraint and optimizing sets. Initial design points for the parameter functions having a first sum of the constraint sets and a second sum of the optimizing sets are selected to such that the first sum satisfies the design constraints. New design points for the parameter functions are selected such that the second sum is improved while the first sum is within the design constraints.--

IN THE CLAIMS

Following is a complete set of claims as amended with this response, which includes new claims 28 and 29, and amendments to claims 1, 3, 11, 13, 22, and 24.

CLEAN CLAIMS

1

- 1 1. (THREE TIMES AMENDED) A method comprising:
- 2 (a) creating parameter functions for a plurality of circuits in a subsystem, the subsystem
- 3 having design constraints, each one of the parameter functions corresponding to each one of the
- 4 circuits, the parameter functions representing a relationship among [the] design parameters of the
- 5 subsystem, the design parameters including constraint and optimizing sets;
- 6 (b) selecting initial design points on the parameter functions having a first sum of the
- 7 constraint set and a second sum of the optimizing set such that the first sum satisfies the design
- 8 constraints; and
- 9 (c) selecting new design points on the parameter functions such that the second sum is
- 10 improved within the design constraints.

- 1 2. The method of claim 1 wherein the creating the parameter functions comprises:
- 2 (a1) configuring each circuit of the plurality of circuits; and

3 (a2) generating values of design parameters for each circuit according to the
4 configured circuit, the values providing the parameter functions.

1 3. (AMENDED) The method of claim 2 wherein the constraint set includes
2 constraint parameters having values selectable to meet the design constraints and the optimizing
3 set includes optimizing parameters having values to be optimized.

1 4. (AMENDED) The method of claim 3 wherein selecting the new design points
2 comprises:

- 3 (c1) selecting values of the constraint parameters to meet the design constraints;
4 (c2) determining values of the optimizing parameters corresponding to the selected
5 values of the constraint parameters based on the parameter functions; and
6 (c3) iterating c(1) and (c2) until values of the optimizing parameters are within a
7 predetermined optimal range.

1 5. The method of claim 3 wherein the constraint parameters include a delay
2 parameter and the optimizing parameters include a power parameter.

1 6. The method of claim 5 wherein the design constraints include a delay constraint.

1 7. The method of claim 6 wherein (a1) comprises:
2 sizing components in each circuit.

1 8. The method of claim 6 wherein (a1) comprises:
2 selecting a design technology for each circuit, the design technology being one of static
3 and dynamic technologies.

1 9. The method of claim 7 wherein (a2) comprises:

- 2 (a21) generating a circuit netlist representing the configured circuit;
3 (a22) generating a timing file based on the circuit netlist using a circuit critical path;
4 (a23) determining power of the configured circuit based on the circuit netlist;
5 (a24) calculating timing values by using a timing simulator; and
6 (a25) calculating power values by using a power estimator.

1 10. The method of claim 9 wherein [optimizing] selecting the new design points
2 comprises:

- 3 (c1) selecting values of the delay parameter within the delay constraint;
4 (c2) determining values of the power parameter corresponding to the selected values
5 of the delay parameter based on the parameter function; and
6 (c3) iterating (c1) and (c2) until values of the power parameter are within a
7 predetermined optimal range.

1 11. (TWICE AMENDED) A machine readable medium having embodied thereon a
2 computer program for processing by a machine, the computer program comprising:

- 3 (a) a first code segment to create parameter functions for a plurality of circuits in a
4 subsystem, the subsystem having design constraints, each one of the parameter functions
5 corresponding to each one of the circuits, the parameter functions representing a relationship
6 among design parameters of the subsystem, the design parameters including constraint and
7 optimizing sets;
8 (b) a second code segment to select initial design points on the parameter functions
9 having a first sum of the constraint set and a second sum of the optimizing set such that the first
10 sum satisfies the design constraints; and
11 (c) a third code segment to select new design points on the parameter functions such
12 that the second sum is improved within the design constraints.

1 12. (AMENDED) The machine readable medium of claim 11 wherein the first code
2 segment comprises:

- 3 (a1) a code segment to configure each circuit of the plurality of circuits; and
4 (a2) a code segment to generate values of design parameters for each circuit according
5 to the configured circuit, the values providing the parameter functions.

1 13. (AMENDED) The machine readable medium of claim 12 wherein the constraint
2 set includes constraint parameters having values selectable to meet the design constraints and the
3 optimizing set includes optimizing parameters having values to be optimized.

1 14. (AMENDED) The machine readable medium of claim 13 wherein the third code
2 segment comprises:

3 (c1) a code segment to select values of the constraint parameters to meet the design
4 constraints;

5 (c2) a code segment to determine values of the optimizing parameters corresponding
6 to the selected values of the constraint parameters based on the parameter functions; and

7 (c3) a code segment to iterate (c1) and (c2) until values of the optimizing parameters
8 are within a predetermined optimal range.

1 15. The machine readable medium of claim 13 wherein the constraint parameters
2 include a delay parameter and the optimizing parameters include a power parameter.

1 16. The machine readable medium of claim 15 wherein the design constraints include
2 a delay constraint.

1 17. (AMENDED) The machine readable medium of claim 16 wherein (a1) comprises:
2 a code segment to size components in each circuit.

1 18. (AMENDED) The machine readable medium of claim 16 wherein (a1) comprises:
2 a code segment to select a design technology for each circuit, the design technology
3 being one of static and dynamic technologies.

1 19. (AMENDED) The machine readable medium of claim 18 wherein (a2) comprises:

2 (a21) a code segment to generate a circuit netlist representing the configured circuit;

3 (a22) a code segment to generate a timing file based on the circuit netlist using a circuit
4 critical path;

5 (a23) a code segment to determine power vectors of the configured circuit based on the
6 circuit netlist;

7 (a24) a code segment to calculate timing values; and

8 (a25) a code segment to calculate power values.

1 20. (AMENDED) The machine readable medium of claim 19 wherein the third code
2 segment comprises:

3 (c1) a code segment to select values of the delay parameter within the delay
4 constraints;

5 (c2) a code segment to determine values of the power parameter corresponding to the
6 selected values of the delay parameter based on the parameter function; and

7 (c3) a code segment to iterate (c1) and (c2) until values of the power parameter are
8 within a predetermined optimal range.

1 22. (THREE TIMES AMENDED) A system comprising:

2 a memory for storing program instructions;

3 a processor coupled to the memory to execute the program instructions, the program
4 instructions when executed by the processor interacting with tools provided by a design
5 environment causing the processor to at least

6 (a) create parameter functions for a plurality of circuits in a subsystem, the subsystem
7 having design constraints, each one of the parameter functions corresponding to each one of the
8 circuits, the parameter functions representing a relationship among design parameters of the
9 subsystem, the design parameters including constraint and optimizing sets,

10 (b) select initial design points on the parameter functions having a first sum of the
11 constraint set and a second sum of the optimizing set such that the first sum satisfies the design
12 constraints; and

13 (c) select new design points on the parameter functions such that the second sum is
14 improved within the design constraints.

1 23. (AMENDED) The system of claim 22 wherein the program instructions causing
2 the processor to create the parameter functions causes the processor to:

3 (a1) configure each circuit of the plurality of circuits; and

4 (a2) generate values of design parameters for each circuit according to the configured
5 circuit, the values providing the parameter functions.

1 24. (AMENDED) The system of claim 22 wherein the constraint set includes
2 constraint parameters having values selectable to meet the design constraints and the optimizing
3 set includes optimizing parameters having values to be optimized.

1 25. (AMENDED) The system of claim 24 wherein the program instructions causing
2 the processor to select the new design points causes the processor to:
3 (c1) select values of the constraint parameters to meet the design constraints;
4 (c2) determine values of the optimizing parameters corresponding to the selected values
5 of the constraint parameters based on the parameter functions; and
6 (c3) iterate (c1) and (c2) until values of the optimizing parameters are within a
7 predetermined optimal range.

1 26. The system of claim 24 wherein the constraint parameters include a delay
2 parameter and the optimizing parameters include a power parameter.

1 27. The system of claim 26 wherein the design constraints include a delay constraint.

1 28. (NEW) A method comprising:
2 (a) generating first and second parameter functions for a circuit corresponding to first and
3 second technologies, each of the first and second parameter functions relating a constraint
4 parameter and an optimizing parameter;
5 (b) selecting a first initial design point and a first new design point on the first parameter
6 function such that the first new design point corresponds to a first improved optimizing
7 parameter within a design constraint;
8 (c) selecting a second initial design point and a second new design point on the second
9 parameter function such that the second new design point corresponds to a second improved
10 optimizing parameter within the design constraint; and
11 (d) selecting the first technology if the first improved optimizing parameter is better than
12 the second improved optimizing parameter, else selecting the second technology.

1 29. (NEW) The method of claim 28 wherein the first technology is a dynamic
2 technology and the second technology is a static technology.

REMARKS

Claims 1-20, and 22-27 are pending in the present application.

This Amendment is in response to the Office Action mailed April 24, 2001. In the Office Action, the Examiner objected to the title and abstract, provisionally rejected Claims 1-20 and 22-27 under 35 U.S.C. § 101 for double patenting, and rejected Claims 1-20 and 22-27 under 35 U.S.C. § 102. In response, Applicant has amended Claims 1, 3, 11, 13, 22, and 24 and add new claims 28 and 29. Applicant submits that the new claims 28 and 29 introduce no new matter. Support for new claims 28 and 29 is found in Figure 4 and Specification on page 17 (lines 6-24), page 18 (lines 1-5), and page 21 (lines 10-13). Reconsideration in light of the amendments and remarks made herein is respectfully requested.

I. TITLE

In the Office Action, the examiner objected to the amended title. In particular, the Examiner stated that the title of the invention is not descriptive. In response, Applicant has amended the title to change to DESIGN OPTIMIZATION OF CIRCUITS BY SELECTING DESIGN POINTS ON PARAMETER FUNCTIONS TO IMPROVE OPTIMIZING PARAMETERS OF CIRCUITS WITHIN DESIGN CONSTRAINTS.

Therefore, Applicant respectfully requests the objection to the title be withdrawn.

II. ABSTRACT

In the Office Action, the Examiner objected to the Abstract. In response, Applicant has amended the Abstract to recite the novelty of the invention. Therefore, Applicant requests the objection to the Abstract be withdrawn.

III. REJECTION UNDER 35 U.S.C. § 102(E)

In the Office Action, the Examiner rejected Claims 1-20, and 22-27 under 1) 35 U.S.C. § 102(e) as anticipated by U.S. Patent No. 5,838,947 issued to Sarin ("Sarin") or U.S. Patent No. 5,880,967 issued to Jyu et al. ("Jyu"), 2) under § 102(a) as being anticipated by U.S. Patent No. 5,835,380 issued to Roething ("Roething") and 3) under § 102(b) as being anticipated by U.S. Patent No. 5,619,420 issued to Breid ("Breid"). Applicant respectfully traverses the rejections for the following reasons.

Applicant reiterates the arguments against the rejections as set forth in the previous response. In addition, Applicant submits that Sarin, Jyu, Roething and Breid, taken alone or in any combination, do not disclose, suggest, or render obvious selecting initial design points having a first sum of the constraint set and a second sum of the optimizing set such that the first sum satisfies the design constraints; and (2) selecting new design points for the parameter functions such that the second sum is improved within the design constraints. These aspects of the invention are supported in the specification on page 19 (lines 6-11), page 20 (lines 19-24), and page 21 (lines 1-9) and is recited in amended Claims 1, 11, and 22 as follows:

“... initial design points on the parameter functions having a first sum of the constraint set and a second sum of the optimizing set such that the first sum satisfies the design constraints; and ... new design points on the parameter functions such that the second sum is improved within the design constraints.” (Amended Claims 1, 11, and 22)

Applicant has also amended Claims 3, 13, and 24 to correct minor informalities.

Therefore, Applicant believes that independent Claims 1, 11, and 22 and their respective dependent Claims are distinguishable over the cited prior art references. Accordingly, Applicant respectfully requests the rejections under 35 U.S.C. § 102(b) be withdrawn.

VERSION WITH MARKINGS TO SHOW CHANGES MADE

ABSTRACT

Please delete the Abstract and insert the following in lieu thereof:

--One embodiment of the present invention is a method and machine readable medium for determining optimal values of design parameters of a subsystem to meet design constraints. The subsystem includes a number of circuits. A parameter function is created for the corresponding circuits. The parameter function represents a relationship among design parameters of the subsystem. The design parameters include constraint and optimizing sets. Initial design points for the parameter functions having a first sum of the constraint sets and a second sum of the optimizing sets are selected to such that the first sum satisfies the design constraints. New design points for the parameter functions are selected such that the second sum is improved while the first sum is within the design constraints.--

CLAIMS

- 1 1. (THREE TIMES AMENDED) A method comprising:
2 (a) creating parameter functions for a plurality of circuits in a subsystem, the subsystem
3 having design constraints, each one of the parameter functions corresponding to each one of the
4 circuits, the parameter functions representing a relationship among [the] design parameters of the
5 subsystem, the design parameters including constraint and optimizing sets;
6 (b) selecting initial design points [for] on the parameter functions [to satisfy] having a
7 first sum of the constraint set and a second sum of the optimizing set such that the first sum
8 satisfies the design constraints; and
9 (c) selecting new design points [for] on the parameter functions [to optimize design
10 parameters] such that the second sum is improved within the design constraints.

- 1 3. (AMENDED) The method of claim 2 wherein [the design parameters include
2 constraint and optimizing sets,] the constraint set [including] includes constraint parameters

3 having values selectable to meet the design constraints[,] and the optimizing set [including]
4 includes optimizing parameters having values to be optimized.

1 11. (TWICE AMENDED) A machine readable medium having embodied thereon a
2 computer program for processing by a machine, the computer program comprising:

3 (a) a first code segment to create parameter functions for a plurality of circuits in a
4 subsystem, the subsystem having design constraints, each one of the parameter functions
5 corresponding to each one of the circuits, the parameter functions representing a relationship
6 among [the] design parameters of the subsystem, the design parameters including constraint and
7 optimizing sets;

8 (b) a second code segment to select initial design points [for] on the parameter
9 functions [to satisfy] having a first sum of the constraint set and a second sum of the optimizing
10 set such that the first sum satisfies the design constraints; and

11 (c) a third code segment to select new design points [for] on the parameter functions
12 [to optimize design parameters] such that the second sum is improved within the design
13 constraints.

1 13. (AMENDED) The machine readable medium of claim 12 wherein [the design
2 parameters include constraint and optimizing sets,] the constraint set [including] includes
3 constraint parameters having values selectable to meet the design constraints[,] and the
4 optimizing set [including] includes optimizing parameters having values to be optimized.

1 22. (THREE TIMES AMENDED) A system comprising:

2 a memory for storing program instructions;

3 a processor coupled to the memory to execute the program instructions, the program
4 instructions when executed by the processor interacting with tools provided by a design
5 environment causing the processor to at least

6 (a) create parameter functions for a plurality of circuits in a subsystem, the subsystem
7 having design constraints, each one of the parameter functions corresponding to each one of the
8 circuits, the parameter functions representing a relationship among [the] design parameters of the
9 subsystem, the design parameters including constraint and optimizing sets,

10 (b) select initial design points [for] on the parameter functions [to satisfy] having a
11 first sum of the constraint set and a second sum of the optimizing set such that the first sum
12 satisfies the design constraints; and
13 (c) select new design points [for] on the parameter functions [to optimize design
14 parameters] such that the second sum is improved within the design constraints.

1 24. (AMENDED) The system of claim 22 wherein [the design parameters include
2 constraint and optimizing sets,] the constraint set [including] includes constraint parameters
3 having values selectable to meet the design constraints[,], and the optimizing set [including]
4 includes optimizing parameters having values to be optimized.

1 28. (NEW) A method comprising:

2 (a) generating first and second parameter functions for a circuit corresponding to first and
3 second technologies, each of the first and second parameter functions relating a constraint
4 parameter and an optimizing parameter;

5 (b) selecting a first initial design point and a first new design point on the first parameter
6 function such that the first new design point corresponds to a first improved optimizing
7 parameter within a design constraint;

8 (c) selecting a second initial design point and a second new design point on the second
9 parameter function such that the second new design point corresponds to a second improved
10 optimizing parameter within the design constraint; and

11 (d) selecting the first technology if the first improved optimizing parameter is better than
12 the second improved optimizing parameter, else selecting the second technology.

1 29. (NEW) The method of claim 28 wherein the first technology is a dynamic
2 technology and the second technology is a static technology.

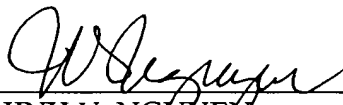
CONCLUSION

In view of the amendments and remarks made above, it is respectfully submitted that pending claims are in condition for allowance, and such action is respectfully solicited.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP

Dated: October 24, 2001

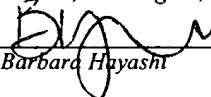


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Barbara Hayashi

October 24, 2001

Date

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 COSTA MESA, CA 92626



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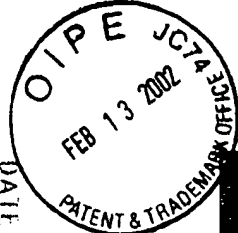
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10/24/2001

DESCRIPTION

U.S. Patent and Trademark Office extension of time fee and

additional claims filing fee for

DESIGN OPTIMIZATION OF CIRCUITS BY SELECTING DESIGN POINTS

ON PARAMETER FUNCTIONS TO IMPROVE OPTIMIZING PARAMETERS

OF CIRCUITS WITHIN DESIGN CONSTRAINTS

APP #09/148,392

FILED 9/4/98

INVENTOR BAEZ

042390.P5512 TVN/BH

AMOUNT
 \$ 1,022.00

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